

Comment ID: CTR-029-004b

Comment Author: Center for Marine Conservation

Document Type: Environmental Group

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02e Include Omitted Benefits

References:

Attachments? N

CROSS REFERENCES E-01c02

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Comment: The Center for Marine Conservation (CMC) is a nationwide, nonprofit advocacy group dedicated to the conservation and enhancement of coastal and ocean life and resources. CMC submits these comments on behalf of its 16,000 members in California and over 120,000 members nationwide.

CMC applauds EPA's efforts to bring California into compliance with the Clean Water Act 303(c)(2)(B). Implementing numeric criteria that will protect the beneficial uses of California's waters is of great importance to the health of coastal and marine ecosystems, and so to CMC and its members. The reliance in many areas of the state on narrative criteria threatens the health of most of the state's waters, thereby impacting both human health and the health of the state's economy that relies on clean water.

While CMC strongly supports the swift adoption of an Enclosed Bays and Estuaries Plan and an Inland Surface Waters Plan that contain numeric criteria for toxic pollutants, CMC also is concerned that many of the specific criteria contained in the proposed rule are weaker than those contained in published guidance. CMC also believes that the proposed rule can better protect certain subpopulations from harm caused by consumption of contaminated fish and shellfish. Finally, CMC is concerned that the economic analysis of the proposed rule over-emphasizes costs and under-reports the many benefits of improving water quality throughout the state. These three points are reviewed below.

#### The Proposed Rule's Economic Analysis Over-Emphasizes Costs and Under reports the Benefits of Improving Water Quality Throughout the State

By EPA's own admission, the proposed rule's economic analysis over-reports costs and under-reports benefits. Specifically, the proposed rule states that "cost estimates for both scenarios, but especially for the high-end scenario, may be overstated because the analysis tended to use conservative assumptions."(\*8) Conversely, "numerous categories of potential or likely benefits have been omitted" from the analysis, and these omitted benefits "are likely to be significant contributors" to an "appreciable underestimation" of the overall benefits of the rule.(\*9) Categories left out of the benefits analysis include improvements in water-related, non-fishing recreation, improvements in land recreation, and improvements in human health resulting from reducing non-cancer risk.(\*10)

CMC believes it is possible to quantify many of these omitted benefits to obtain a more accurate picture of the importance of this rule. For example, a recent Santa Monica Bay Restoration Project Study found that people swimming close to storm drains face a 50% increase in their risk of contracting a variety of non-cancer ills such as gastroenteritis and ear and other infections. At a minimum, EPA's analysis could capture the benefits of improved water quality in terms of avoided sick days and avoided medical costs for such users.

CMC also believes that the economics analysis should consider other categories of benefits not mentioned at all in the proposed rule. For example, Governor Wilson's March 1997 planning document, California's Ocean Resources: An Agenda for the Future, finds that industries that depend on healthy coastal and ocean waters contribute \$17.3 billion to the state's economy each year and support 370,000 jobs. The majority of this total, \$10 billion, is from tourism, which is not mentioned in the proposed rule but which could benefit greatly from improved water quality. Such omitted benefits should be examined in order to have a more balanced economic analysis.

The adequacy of the proposed rule's economic analysis is important to the long-term implementation of the rule. As reported by EPA, "[t]he allegation that the State did not sufficiently consider economics when adopting Water quality objectives ... was an important issue in the litigation" that resulted in the rescission of the Enclosed Bays and Estuaries Plan and the Inland Surface Waters Plan.(\*11) Moreover, an accurate description of the benefits of the proposed rule is critical to obtaining funding and public support for swift implementation of the numeric criteria. CMC thus requests that the benefits analysis be updated where possible to parallel the acknowledged "conservative" approach used in estimating the costs of the proposed rule.

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(\*8) Id. at 42189.

(\*9) Id. at 42190.

(\*10) Id.

(\*11) Id. at 42165.

Response to: CTR-029-004b

EPA acknowledges that it was unable to monetize all categories of potential benefits from the rule. EPA provided a qualitative description of the expected benefits and those unmonetized benefits that may contribute most substantially to total benefits.

Illnesses contracted from swimming, such as those evaluated in the study of storm water drains in Santa Monica Bay, typically result from exposure to pathogens that will not be regulated under the CTR. Noncancer effects from the toxic pollutants that will be reduced by the rule are difficult to quantify because of a lack of information on the link between concentrations in the environment and potential cases of systemic effects.

Secondary benefits (e.g., tourism) or economic impacts embody the successive rounds of spending in an economy that result from the primary benefits of a regulation. These secondary benefits (or impacts) are estimated based on the analysis of data on interindustry linkages within a region. Although these impacts may be of relevance to policymakers, the inclusion of secondary benefits may be inappropriate. This is because under conditions of reasonably full employment, the resources placed into support services (or diverted from complying entities) would be diverted from (or redirected toward) other productive purposes (i.e., net jobs would not be created or lost for otherwise unemployed individuals but, rather, workers would be drawn to or away from other jobs). Thus, these secondary impacts represent a transfer or redistribution of resources rather than changes in real economic activity.

The benefits of water quality improvements are highly site specific and difficult to monetize due to

limitations in benefits methodology and accurate data on society's values for these improvements. For example, there are currently few means of linking consumption of toxic contaminants by humans with cases of systemic effects (as opposed to cancer effects, for which dose-response curves have been estimated). As another example, the contingent valuation (CV) is the only method for estimating passive use values, and CV surveys require substantial resources to conduct. As a result, there is limited data and information with which to estimate the benefits of the proposed rule. Since these values are not known, a parallel conservative approach is not possible. EPA presented the information on the limitations of the analysis (e.g., costs may be overstated and benefits may be understated) to assist decisionmakers in evaluating the results.

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Comment ID: CTR-092-023a

Comment Author: City of San Jose, California

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/26/97

Subject Matter Code: E-02e Include Omitted Benefits

References: Letter CTR-092 incorporates by reference letter CTR-035

Attachments? Y

CROSS REFERENCES E-021

E-02q

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Comment: Comment #7: General Benefit Analysis Concerns

The benefit analysis undertaken by EPA uses old, out-of-state data which does not appear applicable to California. A major concern with this analysis is that the benefit recipients are only a subset of those impacted by the costs. Another is that the benefits accrue to the public at large; costs, on the other hand, to the extent that CTR-implementation costs are borne by Indirect Dischargers (as assumed by EPA in the copper situation) accrue to businesses.

Further, the benefit measurements of "angling day" are only useful if they represent a net increase in fishing activity -- if all that improving waterway quality does is create additional sites where safe fishing can occur, without increasing the overall amount of fishing that occurs, there is no net gain, there is only substitution between comparable sites. The value of benefits which occur because of substitution between fishing sites must be subtracted from the value which occurs from increased fishing. This has not been done in the EPA analysis, thus benefits are overstated.

Further, no stratification is evident to account for importation of out-of-state fishers -- including benefit value of attracting new anglers from other states to California fishing sites is irrelevant to an analysis of costs/benefits of implementing the CTR for California.

Questions for EPA on Comment #7:

Q.7 - 1) If the concerns stated above were appropriately addressed, what would be the impact on EPA's benefits analysis? Our concern relates to the need to examine levels of regulation in comparison to benefits obtained, i.e. cost-effectiveness.

Q.7 - 2) Executive Order 12866, in recognition that quantification of benefits is very difficult, is quite

explicit about addressing qualitative benefits wherever possible why wasn't that done in this analysis?

Response to: CTR-092-023a

EPA was not able to locate more relevant or more recent data or research for the analysis. EPA solicited relevant data and information in the EA and proposal. In addition, in response to comments, EPA conducted an extensive search of the literature for any additional recent, California-specific data or information applicable to the benefits analysis. EPA reviewed and evaluated all data and information submissions, and the results of the literature search, and revised the EA and CTR as appropriate prior to promulgating the final rule.

Although it is true that the direct costs of the regulation are borne by municipal and industrial dischargers while the benefits accrue to the public at large, it is also true that in generating the discharges, the benefits (cost savings) accrued to businesses and municipalities while the costs (decreased utility associated with water resources) were borne by the public. Ultimately, benefits and costs are borne throughout society (e.g., costs are borne directly by municipal and industrial dischargers but indirectly by the public who pays for their products and services).

EPA acknowledged that increased angling activity at sites experiencing reductions in toxic contaminants may reflect a shift in activity from substitute sites rather than a net increase. Because EPA could not account for substitute sites in this analysis, EPA estimated lower bound benefits of \$0 (i.e., assuming no net increases in activity; see EA, Chapter 8).

EPA's estimate of the relevant angling population is based on resident California anglers (see Analysis of the Potential Benefits Related to Implementation of the California Toxics Rule, Draft, December 20, 1996, pp. 3-23, 3-35 to 3-36).

EPA revised its economic analysis in response to comments and to reflect any new data or changes to the proposal.

(EPA revised.....already part of text)....The estimated cost-effectiveness of the rule is expected to range from \$22/lb-eq to \$31/lb-eq. EPA expects the total annual, monetized benefits from implementation of the CTR to range from \$8.7 to \$40.8 million dollars.

Chapter 6 of the EA (Qualitative Assessment of Potential Ecological Benefits) provides a qualitative discussion of potential ecological benefits. EPA also provided a qualitative discussion of important benefit categories that it was not able to quantify or monetize (see the EA that accompanied the proposed rule, Chapter 8).

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Subject Matter Code: E-02f Use More Recent Data

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Comment ID: CTR-035-009a

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02f Use More Recent Data

References:

Attachments? N

CROSS REFERENCES E-02c

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Comment: We also question the estimates of the benefits derived in the draft Economic Analysis, and believe that more recent information specific to California should be collected and used. In particular, for most of the benefits, estimates are based on a comparison with waters which are completely free of contaminants or unimpaired, which is unrealistic. There is also little evaluation of the marginal benefits of the proposed rule (i.e. the benefits that would be realized as a result of marginal changes in contamination levels). While presumably achievement of the full reductions necessary to meet the CTR criteria in ambient waters is EPA's goal, EPA itself acknowledges that few of the benefits of the CTR are likely to be realized through point source controls, and the Agency fails to demonstrate how the water quality criteria promulgated by the CTR will be achieved.

Response to: CTR-035-009a

EPA considers Lyke's scenario (waters completely free of contaminants that may threaten human health) to be similar to a scenario in which all California waters meet the water quality standards established by the CTR. EPA has no information to show that these standards cannot be achieved. Thus, EPA used Lyke's results to estimate the total potential benefits of achieving standards. However, since point source controls alone may not be sufficient to achieve the standards throughout California, EPA allocated only a portion of the total benefits to the CTR.

EPA agrees that the study site for Lyke's research is substantially different from California waters. However, EPA's search of the literature indicated that there is no similar research for California or other more similar waters. Therefore, EPA applied Lyke's results to provide decisionmakers with information on the types and potential magnitude of the benefits from water quality improvements, rather than leaving this important benefit category unmonetized. EPA has no information to determine whether California residents may value toxic-free waters more or less than Wisconsin residents.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

Water quality improvements often involve thresholds such as action levels for fish consumption

advisories. However, water quality regulations often contribute only a portion of the improvement needed to surpass a threshold. Although individuals may (or may not) have a willingness to pay for incremental steps toward crossing a threshold, when the threshold is surpassed (e.g., fish consumption advisories are lifted), every action that contributed to the effort should be allocated a portion of the benefits. This was accomplished for the CTR by allocating a portion of the total toxic-free benefits (proportional to the reduction in loadings) to the implementation of point source controls under the CTR.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

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Comment ID: CTR-035-051b

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02f Use More Recent Data

References:

Attachments? N

CROSS REFERENCES E-02g

E-02k

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Comment: C. Benefits Analysis pp. 5-7 - 5-8 (U.S. EPA, 1997a) -- Attribution of Benefits to the Control of Point Sources

We applaud EPA's effort to analyze and report the proportion of the total benefits that might accrue due to the implementation of controls on point source NPDES dischargers in the benefits analysis (although we believe that this apportionment should have been carried through to the estimates of passive use benefits). We believe that it is appropriate to state the benefits that can be attributed to the estimated expenditures. We recognize, however, that there are many limitations in this approach, and that better data are needed. For instance, the pollutant loadings data used in this analysis were old and outdated (specifically, the Davis and NOAA studies contained data that are 10-15 years old). We urge EPA to update these studies with more recent data for the final Economic Analysis.

We believe that the benefits analysis illustrates that, in many instances, point source controls will not produce significant benefits. For instance, this is illustrated by the fact that the projected health benefits of the CTR in reducing both cancer and baseline systemic risks are minimal (see pp. 8-11 - 8-16, (U.S. EPA, 1997a)). Another example is illustrated by an examination of those water bodies for which fish consumption advisories have been issued. For those included on the State's 303(d) list, except for San Francisco Bay, the causes of impairment are largely listed by the SWRCB as nonpoint sources, including mining or resource extraction, agricultural drainage or runoff, urban stormwater runoff, or other unspecified nonpoint sources (SWRCB, 1996).

In addition, the analysis of benefits should highlight more clearly the fact that there may be little or no benefits in the near-term due to long-term environmental persistence of existing contamination. As EPA itself acknowledges on p. 5-8 (U.S. EPA, 1997a), "historical loads may, in some instances, be the predominant source of toxics-related water quality problems. In such instances, efforts to control current

discharges may be of relatively limited effectiveness and value." It is well-documented that some substances, such as DDT and PCBs, which have been banned for two or more decades, still persist in the environment; thus, the likelihood of the CTR substantially reducing loadings and producing benefits is minimal.

Response to: CTR-035-051b

As described in the EA (Chapter 8), research provides empirical evidence of the passive use values associated with improved water quality and fisheries. Research also indicates that these values are at least half as great as recreational values, such that if they are potentially applicable to a policy action, providing a rough approximation is preferable, with proper caveats, to omitting them from the analysis of benefits and costs. EPA believes that the studies used to calculate the ratio of passive use to use value are applicable to the CTR (see also comment and response CTR-029-009).

Therefore, EPA applies a ratio of .5 to obtain an estimate of passive use values for those households that have active recreational anglers. Based on a review of the literature, on studies that estimate resource values for users and non-users (see the revised economic analysis), EPA believes that non-angling households do indeed have a passive use value. To determine a lower-bound estimate of passive use values for non-angling households, EPA assumed that the value may be 30% of the value for angling households. For analysis of the final CTR, EPA revised the upper-bound estimate assuming that the passive use value of non-angling households may be 90% of those for angling households. This revision is based on a study by Loomis et al. (1991), who estimated the benefits of improved fishery, wetland, and waterfowl resources in the San Joaquin Valley to users and nonusers residing in California.

By multiplying a ratio of passive use to use value by recreational fishing values, which EPA apportioned to reflect the relative contribution of point sources, EPA also accounted for attribution in its estimate of passive use values.

For the EA that accompanied the proposal, EPA conducted an extensive search of the literature for more recent data or information related to the relative contributions of various sources to water quality impairments. In the EA accompanying the proposal, EPA solicited additional data, however, none was received. In revising the EA for the final rulemaking, EPA conducted an additional extensive search of the literature and research efforts at California universities for relevant information. EPA has incorporated any new information into the revised EA for the final rule.

The standards established in the CTR apply to all waterbodies. EPA currently only applies water quality based effluent limits to point sources, and thus the estimate of post-regulation risk levels reflect only the potential impact of controls on point sources. However, controls will also be required of other sources in the future. As controls on other sources are implemented (e.g., remediation of contaminated sediments; best management practices to control storm water discharges and runoff from agricultural land), EPA expects that concentrations in fish tissue will decline further and that the standards established by the CTR to protect human health can be achieved.

EPA also believes that the risk reducing impact of the regulation on point sources may not be fully illustrated by EPA's analysis which reflects only a small sample of point source dischargers. That is, although baseline risk levels are based on actual fish tissue concentrations, post-regulation risk levels are estimated by examining the potential for reducing loadings at a sample of facilities. Pollutants responsible for much of the baseline health risk at specific sites, such as popular fishing areas in San Francisco Bay, may be found in point sources effluents, however, the facilities discharging these pollutants may not be included in the sample.

Although the standards established by the CTR apply to all sources, EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

EPA recognizes the persistence of some of the substances addressed by the CTR (e.g., DDT and PCBs) and the impact of this persistence on the realization of benefits. In the EA (Chapter 9), EPA accounted for this lag by assuming 10- and 20-year phase-in periods for benefits in its comparison of present value benefits and costs.

In addition, EPA believes that point source controls can factor into pollutant reduction scenarios, although the cost-effectiveness of point and nonpoint source controls are likely to be highly site specific. Potential "hidden" loads (contaminant concentrations which are not currently measured because they are below detection levels) from point sources may also be occurring and may increase the potential benefits of point source controls. In addition, point source loadings reductions will reduce future sediment contamination and, thereby, reduce the need for costly site-specific sediment remediation in the future. Therefore, the CTR can be viewed as both reducing current environmental risks (yielding benefits) by reducing current loadings, and reducing future environmental cleanup costs.

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Comment ID: CTR-045-010

Comment Author: Sausalito-Marín Sanitary Dist.

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/24/97

Subject Matter Code: E-02f Use More Recent Data

References:

Attachments? Y

CROSS REFERENCES

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Comment: For the benefits analysis, EPA should utilize more California-specific and recent information.

Response to: CTR-045-010

EPA was not able to locate more relevant or more recent data or research for the analysis. EPA solicited relevant data and information in the EA and proposal. In addition, in response to comments, EPA conducted an extensive search of the literature for any additional recent, California-specific data or information applicable to the benefits analysis. EPA reviewed and evaluated all data and information submissions, and the results of the literature search, and revised the EA and CTR as appropriate prior to promulgating the final rule.

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Comment ID: CTR-056-021

Comment Author: East Bay Municipal Util. Dist.



Document Type: Sewer Authority  
State of Origin: CA  
Represented Org:  
Document Date: 09/22/97  
Subject Matter Code: E-02f Use More Recent Data  
References: Letter CTR-056 incorporates by reference letter CTR-054  
Attachments? N  
**CROSS REFERENCES**

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Comment: Regarding the benefits analysis, EPA should use more recent information and information specific to the state of California to develop their assessment of the value of the benefits resulting from the implementation of the CTR. We believe that by considering these two factors alone, the benefit value is more likely to be on the low side of the \$1.5 to \$51.7 million/year estimate provided by EPA. Also, a consideration which was not included as an adverse side-effect of enhancing beneficial uses of inland surface waters and enclosed bays and estuaries is the increased pollutant loading along the margins of the water body linked to increased recreational activities (e.g. increased pollution associated with recreational boating).

Response to: CTR-056-021

EPA was not able to locate more relevant or more recent data or research for the analysis. EPA solicited relevant data and information in the EA and proposal. In addition, in response to comments, EPA conducted an extensive search of the literature for any additional recent, California-specific data or information applicable to the benefits analysis. EPA reviewed and evaluated all data and information submissions, and the results of the literature search, and revised the EA and CTR as appropriate prior to promulgating the final rule.

EPA believes that the environmental impacts of the pollutants regulated by the CTR far exceed those associated with recreational boating, and that pollutants generated by boating are already regulated to ensure minimal impacts on water resources.

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Comment ID: CTR-066-014  
Comment Author: Delta Diablo Sanitation Dist.  
Document Type: Sewer Authority  
State of Origin: CA  
Represented Org:  
Document Date: 09/26/97  
Subject Matter Code: E-02f Use More Recent Data  
References:  
Attachments? N  
**CROSS REFERENCES**

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Comment: The areas with which we find concerns and the requested changes include the following:

\* With regard to the benefits analysis, we believe EPA should utilize more California-specific and recent information.

Response to: CTR-066-014

EPA was not able to locate more relevant or more recent data or research for the analysis. EPA solicited relevant data and information in the EA and proposal. In addition, in response to comments, EPA conducted an extensive search of the literature for any additional recent, California-specific data or information applicable to the benefits analysis. EPA reviewed and evaluated all data and information submissions, and the results of the literature search, and revised the EA and CTR as appropriate prior to promulgating the final rule.

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Comment ID: CTR-082-008

Comment Author: City of Burbank

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/24/97

Subject Matter Code: E-02f Use More Recent Data

References:

Attachments? N

CROSS REFERENCES

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Comment: The subject rule has a significant impact on our facility discharge and the citizens of the City. We therefore present the following comments for your consideration to re-open the comment period for this rule in order to facilitate a more complete review by public and in particular by those in the POTW community:

\* For the benefits analysis, EPA should utilize more California-specific and recent information.

Response to: CTR-082-008

EPA was not able to locate more relevant or more recent data or research for the analysis. EPA solicited relevant data and information in the EA and proposal. In addition, in response to comments, EPA conducted an extensive search of the literature for any additional recent, California-specific data or information applicable to the benefits analysis. EPA reviewed and evaluated all data and information submissions, and the results of the literature search, and revised the EA and CTR as appropriate prior to promulgating the final rule.

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Comment ID: CTR-085-017

Comment Author: Camarillo Sanitary District

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/24/97

Subject Matter Code: E-02f Use More Recent Data

References:

Attachments? N

CROSS REFERENCES

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Comment: The District supports the following positions of CASA and SCAP where changes need to be

made in the proposed California Toxics Rule:

\* For the benefit analysis, the EPA should utilize more California-specific and recent information.

Response to: CTR-085-017

EPA was not able to locate more relevant or more recent data or research for the analysis. EPA solicited relevant data and information in the EA and proposal. In addition, in response to comments, EPA conducted an extensive search of the literature for any additional recent, California-specific data or information applicable to the benefits analysis. EPA reviewed and evaluated all data and information submissions, and the results of the literature search, and revised the EA and CTR as appropriate prior to promulgating the final rule.

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Subject Matter Code: E-02g Benefits & Poll. Reduction

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Comment ID: CTR-035-051a

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02g Benefits & Poll. Reduction

References:

Attachments? N

CROSS REFERENCES E-02f

E-02k

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Comment: C. Benefits Analysis pp. 5-7 - 5-8 (U.S. EPA, 1997a) -- Attribution of Benefits to the Control of Point Sources

We applaud EPA's effort to analyze and report the proportion of the total benefits that might accrue due to the implementation of controls on point source NPDES dischargers in the benefits analysis (although we believe that this apportionment should have been carried through to the estimates of passive use benefits). We believe that it is appropriate to state the benefits that can be attributed to the estimated expenditures. We recognize, however, that there are many limitations in this approach, and that better data are needed. For instance, the pollutant loadings data used in this analysis were old and outdated (specifically, the Davis and NOAA studies contained data that are 10-15 years old). We urge EPA to update these studies with more recent data for the final Economic Analysis.

We believe that the benefits analysis illustrates that, in many instances, point source controls will not produce significant benefits. For instance, this is illustrated by the fact that the projected health benefits of the CTR in reducing both cancer and baseline systemic risks are minimal (see pp. 8-11 - 8-16, (U.S. EPA, 1997a)). Another example is illustrated by an examination of those water bodies for which fish consumption advisories have been issued. For those included on the State's 303(d) list, except for San Francisco Bay, the causes of impairment are largely listed by the SWRCB as nonpoint sources, including mining or resource extraction, agricultural drainage or runoff, urban stormwater runoff, or other unspecified nonpoint sources (SWRCB, 1996).

In addition, the analysis of benefits should highlight more clearly the fact that there may be little or no benefits in the near-term due to long-term environmental persistence of existing contamination. As EPA itself acknowledges on p. 5-8 (U.S. EPA, 1997a), "historical loads may, in some instances, be the predominant source of toxics-related water quality problems. In such instances, efforts to control current discharges may be of relatively limited effectiveness and value." It is well-documented that some substances, such as DDT and PCBs, which have been banned for two or more decades, still persist in the environment; thus, the likelihood of the CTR substantially reducing loadings and producing benefits is minimal.

Response to: CTR-035-051a

As described in the EA (Chapter 8), research provides empirical evidence of the passive use values associated with improved water quality and fisheries. Research also indicates that these values are at least half as great as recreational values, such that if they are potentially applicable to a policy action,

providing a rough approximation is preferable, with proper caveats, to omitting them from the analysis of benefits and costs. EPA believes that the studies used to calculate the ratio of passive use to use value are applicable to the CTR (see also comment and response CTR-026-009).

Therefore, EPA applies a ratio of .5 to obtain an estimate of passive use values for those households that have active recreational anglers. Based on a review of the literature, EPA believes that non-angling household do indeed have a passive use value. To determine a lower-bound estimate of passive use values for non-angling households, EPA assumed that the value may be 30% of the value for angling households. For analysis of the final CTR, EPA revised the upper-bound estimate assuming that the passive use value of non-angling households may be 90% of those for angling households. This revision is based on a study by Loomis et al. (1991), who estimated the benefits of improved fishery, wetland, and waterfowl resources in the San Joaquin Valley to users and nonusers residing in California.

By multiplying a ratio of passive use to use value by recreational fishing values, which EPA apportioned to reflect the relative contribution of point sources, EPA also accounted for attribution in its estimate of passive use values.

For the EA that accompanied the proposal, EPA conducted an extensive search of the literature for more recent data or information related to the relative contributions of various sources to water quality impairments. In the EA accompanying the proposal, EPA solicited additional data, however, none was received. In revising the EA for the final rulemaking, EPA conducted an additional extensive search of the literature and research efforts at California universities for relevant information. EPA has incorporated any new information into the revised EA for the final rule.

The standards established in the CTR apply to all California inland surface waters and enclosed bays and estuaries. EPA currently only applies water quality based effluent limits to point sources, and thus the estimate of post-regulation risk levels reflect only the potential impact of controls on point sources. However, controls will also be required of other sources in the future. As controls on other sources are implemented (e.g., remediation of contaminated sediments; best management practices to control storm water discharges and runoff from agricultural land), EPA expects that concentrations in fish tissue will decline further and that the standards established by the CTR to protect human health can be achieved.

EPA also believes that the risk reducing impact of the regulation on point sources may not be fully illustrated by EPA's analysis which reflects only a small sample of point source dischargers. That is, although baseline risk levels are based on actual fish tissue concentrations, post-regulation risk levels are estimated by examining the potential for reducing loadings at a sample of facilities. Pollutants responsible for much of the baseline health risk at specific sites, such as popular fishing areas in San Francisco Bay, may be found in point sources effluents, however, the facilities discharging these pollutants may not be included in the sample.

Although the standards established by the CTR apply to all sources, EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

EPA recognizes the persistence of some of the substances addressed by the CTR (e.g., DDT and PCBs) and the impact of this persistence on the realization of benefits. In the EA (Chapter 9), EPA accounted for this lag by assuming 10- and 20-year phase-in periods for benefits in its comparison of present value

benefits and costs.

In addition, EPA believes that point source controls can factor into pollutant reduction scenarios, although the cost-effectiveness of point and nonpoint source controls are likely to be highly site specific. Potential "hidden" loads (contaminant concentrations which are not currently measured because they are below detection levels) from point sources may also be occurring and may increase the potential benefits of point source controls. In addition, point source loadings reductions will reduce future sediment contamination and, thereby, reduce the need for costly site-specific sediment remediation in the future. Therefore, the CTR can be viewed as both reducing current environmental risks (yielding benefits) by reducing current loadings, and reducing future environmental cleanup costs.

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Comment ID: CTR-035-066  
Comment Author: Tri-TAC/CASA  
Document Type: Trade Org./Assoc.  
State of Origin: CA  
Represented Org:  
Document Date: 09/25/97  
Subject Matter Code: E-02g Benefits & Poll. Reduction  
References:  
Attachments? N  
CROSS REFERENCES

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Comment: \* The Analysis suggests that the proposed reductions in point source discharges may not result in any benefits. As indicated by USEPA, "...the estimates presented here do not make direct causal links between point source controls and the stated benefits..."

Response to: CTR-035-066

EPA recognizes that the benefits of the rule will not occur immediately, and has estimated lags in the realization of benefits. However, EPA believes that the standards established by the CTR can be achieved through point source controls and will result in attaining designated uses of the water bodies, and that the estimated benefits are illustrative of the types and potential benefits to be achieved from attaining these uses.

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Comment ID: CTR-040-044  
Comment Author: County of Sacramento Water Div  
Document Type: Storm Water Auth.  
State of Origin: CA  
Represented Org:  
Document Date: 09/25/97  
Subject Matter Code: E-02g Benefits & Poll. Reduction  
References: Letter CTR-040 incorporates by reference letter CTR-027  
Attachments? Y  
CROSS REFERENCES

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Comment: EPA's estimate of reduced cancer benefits (\$5.3 million annually under the high-end scenario)

is suspect because the analysis does not show that the pollutant upon which the benefits are based (DDT) will be reduced (or sufficiently reduced) as a result of the CTR to lead to the estimated reduction in cancer cases.

Response to: CTR-040-044

To calculate potential human health risk reduction benefits, EPA first calculated baseline risk levels using actual contaminant concentrations found in fish tissue. EPA then multiplied the baseline risk levels by the estimated reduction in loadings expected to result from the implementation of point source controls and by the relative contribution of point source loadings to total loadings. For DDT, EPA estimated a 68.8% reduction in point source loadings under the high end cost estimate and a 0% reduction in point source loadings under the low end cost estimate. EPA's estimate of human health benefits reflects these estimated reductions. For example, potential cancer-related benefits to recreational anglers range from \$0 to \$4.2 million for freshwater resources and total \$0 for San Francisco Bay.

In addition, the risk reducing impact of the regulation on point sources may not be fully illustrated by EPA's analysis which reflects only a small sample of point source dischargers. That is, although baseline risk levels are based on actual fish tissue concentrations, post-regulation risk levels are estimated by examining the potential for reducing loadings at a sample of facilities. Pollutants responsible for much of the baseline health risk at specific sites, such as popular fishing areas in San Francisco Bay, may be found in point source effluents, however, the facilities discharging these pollutants may not be included in the sample.

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Comment ID: CTR-041-040

Comment Author: Sacramento Reg Cnty Sanit Dist

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02g Benefits & Poll. Reduction

References:

Attachments? N

CROSS REFERENCES

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Comment: EPA's estimate of reduced cancer benefits (\$5.3 million annually under the high-end scenario) is suspect because the analysis does not show that the pollutant upon which the benefits are based (DDT) will be reduced (or sufficiently reduced) as a result of the CTR to lead to the estimated reduction in cancer cases.

Response to: CTR-041-040

To calculate potential human health risk reduction benefits, EPA first calculated baseline risk levels using actual contaminant concentrations found in fish tissue. EPA then multiplied the baseline risk levels by the estimated reduction in loadings expected to result from the implementation of point source controls and by the relative contribution of point source loadings to total loadings. For DDT, EPA estimated a 68.8% reduction in point source loadings under the high end cost estimate and a 0% reduction in point source loadings under the low end cost estimate. EPA's estimate of human health benefits reflects these estimated reductions. For example, potential cancer-related benefits to recreational

anglers range from \$0 to \$4.2 million for freshwater resources and total \$0 for San Francisco Bay.

In addition, the risk reducing impact of the regulation on point sources may not be fully illustrated by EPA's analysis which reflects only a small sample of point source dischargers. That is, although baseline risk levels are based on actual fish tissue concentrations, post-regulation risk levels are estimated by examining the potential for reducing loadings at a sample of facilities. Pollutants responsible for much of the baseline health risk at specific sites, such as popular fishing areas in San Francisco Bay, may be found in point source effluents, however, the facilities discharging these pollutants may not be included in the sample.

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Comment ID: CTR-044-035

Comment Author: City of Woodland

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/26/97

Subject Matter Code: E-02g Benefits & Poll. Reduction

References:

Attachments? N

CROSS REFERENCES

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Comment: EPA's estimate of reduced cancer benefits (\$5.3 million annually under the high-end scenario) is suspect because the analysis does not show that the pollutant upon which the benefits are based (DDT) will be reduced (or sufficiently reduced) as a result of the CTR to lead to the estimated reduction in cancer cases.

Response to: CTR-044-035

To calculate potential human health risk reduction benefits, EPA first calculated baseline risk levels using actual contaminant concentrations found in fish tissue. EPA then multiplied the baseline risk levels by the estimated reduction in loadings expected to result from the implementation of point source controls and by the relative contribution of point source loadings to total loadings. For DDT, EPA estimated a 68.8% reduction in point source loadings under the high end cost estimate and a 0% reduction in point source loadings under the low end cost estimate. EPA's estimate of human health benefits reflects these estimated reductions. For example, potential cancer-related benefits to recreational anglers range from \$0 to \$5.3 million for freshwater resources and total \$0 for San Francisco Bay.

In addition, the risk reducing impact of the regulation on point sources may not be fully illustrated by EPA's analysis which reflects only a small sample of point source dischargers. That is, although baseline risk levels are based on actual fish tissue concentrations, post-regulation risk levels are estimated by examining the potential for reducing loadings at a sample of facilities. Pollutants responsible for much of the baseline health risk at specific sites, such as popular fishing areas in San Francisco Bay, may be found in point source effluents, however, the facilities discharging these pollutants may not be included in the sample.

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Comment ID: CTR-054-039

Comment Author: Bay Area Dischargers Associati



Document Type: Sewer Authority  
State of Origin: CA  
Represented Org:  
Document Date: 09/25/97  
Subject Matter Code: E-02g Benefits & Poll. Reduction  
References:  
Attachments? N  
CROSS REFERENCES

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Comment: EPA's estimate of reduced cancer benefits (\$5.3 million annually under the high-end scenario) is suspect because the analysis does not show that the pollutant upon which the benefits are based (DDT) will be reduced (or sufficiently reduced) as a result of the CTR to lead to the estimated reduction in cancer cases.

Response to: CTR-054-039

To calculate potential human health risk reduction benefits, EPA first calculated baseline risk levels using actual contaminant concentrations found in fish tissue. EPA then multiplied the baseline risk levels by the estimated reduction in loadings expected to result from the implementation of point source controls and by the relative contribution of point source loadings to total loadings. For DDT, EPA estimated a 68.8% reduction in point source loadings under the high end cost estimate and a 0% reduction in point source loadings under the low end cost estimate. EPA's estimate of human health benefits reflects these estimated reductions. For example, potential cancer-related benefits to recreational anglers range from \$0 to \$5.3 million for freshwater resources and total \$0 for San Francisco Bay.

In addition, the risk reducing impact of the regulation on point sources may not be fully illustrated by EPA's analysis which reflects only a small sample of point source dischargers. That is, although baseline risk levels are based on actual fish tissue concentrations, post-regulation risk levels are estimated by examining the potential for reducing loadings at a sample of facilities. Pollutants responsible for much of the baseline health risk at specific sites, such as popular fishing areas in San Francisco Bay, may be found in point source effluents, however, the facilities discharging these pollutants may not be included in the sample.

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Subject Matter Code: E-02h Un-Enclose,Enclose Bay Data

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Comment ID: CTR-035-053

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02h Un-Enclose,Enclose Bay Data

References:

Attachments? N

**CROSS REFERENCES**

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Comment: pp. 7-12 - 7-14 (U.S. EPA, 1997c) -- Extrapolation from Non-Enclosed Bays to Enclosed Bays

EPA assumed that the data from the 1988 NOAA study on 5 bays (San Diego, Humboldt, Monterey, Santa Monica, and San Pedro) could be readily extrapolated for enclosed bays. We believe that there are serious flaws in this approach, and that the data for the non-enclosed bays should be removed from the data set. We are most familiar with Santa Monica Bay, which has been heavily studied, including several specialized studies since that time. The basic problem with including data such as that for Santa Monica Bay in the data set is that the mass loading data are undoubtedly dominated by data for 2 large ocean discharge POTWs (each greater than or equal to 350 MGD), which would likely not be allowed to discharge into enclosed bays, thus skewing the assumptions towards a greater influence from POTWs on these bays than really occurs. If EPA examines the SWRCB's 1996 303(d) list, information is provided for many of these water bodies indicating what types of discharges are the likely sources of the pollution problems, which we believe will confirm this.

Response to: CTR-035-053

The NOAA data included five bays (San Diego, Humboldt, Monterey, Santa Monica, and San Pedro), two of which are actually covered by the CTR (San Diego and Humboldt). EPA assumed that the data for the nonenclosed bays generally will be applicable to enclosed bays. If EPA had excluded those bays not covered by the rule, the attribution assumption for point sources would actually be higher (see EA, p. 7-4). For example, for urban bays, the toxic-weighted average contribution of point sources is higher for the enclosed bay covered by the rule (San Diego Bay; 91%) compared to the nonenclosed bays (Santa Monica and San Pedro, at 88% and 83%, respectively). EPA employed toxicity-weighting to estimate relative source contribution because the toxicity of the discharge, more than volume, will influence its impact on receiving waters. The California 1996 303(d) report lists both point and nonpoint sources as probable sources of pollution for Santa Monica Bay. The list of pollutants and stressors for Santa Monica Bay includes metals, DDT, and PCBs.

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Comment ID: CTR-035-070

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02h Un-Enclose,Enclose Bay Data

References:

Attachments? N

#### CROSS REFERENCES

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Comment: \* Even more than the cost analysis, benefits would appear to be site-specific. Uses of water bodies varies considerable, as does the contribution of point, non-point, and natural sources to toxic contamination. As a result, there is likely a mismatch between the total estimated benefits, and the distribution of these benefits throughout the state, as well as the costs of obtaining water body-specific benefits (e.g., costs could be disproportionately felt in areas with little benefit).

For example, USEPA's assumptions about urban bays other than San Francisco are based on a National Oceanic and Atmospheric Administration (NOAA) report that examined five bays: Humboldt, Monterey, San Diego, San Pedro, and Santa Monica, of which only Humboldt and San Diego are covered by the Rule. USEPA assumption that the data for the non-enclosed bays is generally applicable to enclosed bays may not be supportable as a result of differences in dilution factors and the contribution of non-point sources.

Response to: CTR-035-070

EPA agrees that benefits are likely to be highly site specific. However, sites likely to experience a disproportionate share of the benefits are also likely to incur a disproportionate share of the costs.

In addition, once water quality standards are in place, sites that are currently less impacted by toxic pollutants may experience cost savings by preventing future cleanup costs. That is, it may be more cost-effective to prevent toxic pollutants from entering surface waters than to clean up and remediate the impacts once toxic pollutants are released. However, should the State determine through a total maximum daily load (TMDL) allocation that controls on nonpoint sources are a more cost-effective approach to achieving standards, the State can redistribute the allocations through the TMDL process.

The NOAA data included five bays (San Diego, Humboldt, Monterey, Santa Monica, and San Pedro), two of which are actually covered by the CTR (San Diego and Humboldt). EPA assumed that the data for the nonenclosed bays generally will be applicable to enclosed bays. If EPA had excluded those bays not covered by the rule, the attribution assumption for point sources would actually be higher (see EA, p. 7-4). For example, for urban bays, the toxic-weighted average contribution of point sources is higher for the enclosed bay covered by the rule (San Diego Bay; 91%) compared to the nonenclosed bays (Santa Monica and San Pedro, at 88% and 83%, respectively). EPA employed toxicity-weighting to estimate relative source contribution because the toxicity of the discharge, more than volume, will influence its impact on receiving waters. The California 1996 303(d) report lists both point and nonpoint sources as probable sources of pollution for Santa Monica Bay. The list of pollutants and stressors for Santa Monica Bay includes metals, DDT, and PCBs.

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Subject Matter Code: E-02i Impaired Waters Assumptions

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Comment ID: CTR-035-054  
Comment Author: Tri-TAC/CASA  
Document Type: Trade Org./Assoc.  
State of Origin: CA  
Represented Org:  
Document Date: 09/25/97  
Subject Matter Code: E-02i Impaired Waters Assumptions  
References:  
Attachments? N

CROSS REFERENCES

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Comment: p. 8-18 (U.S. EPA, 1997a) --Assumptions Regarding Impaired Waters EPA explains on p. 8-18 how it extrapolated from the State's 305(b) Report to create estimates for all waters. We believe that EPA should have consulted the SWRCB to determine the general locations of unassessed/unmonitored waters so that logical assumptions could be made. Assumptions about water quality conditions would be very different, for instance, if they are mostly Central Valley agricultural drains than if they are streams in the Sierra Nevada or northern California mountains.

Response to: CTR-035-054

EPA did consult with SWRCB staff concerning appropriate assumptions about unassessed waters. The SWRCB considered EPA's assumptions reasonable for estimating the extent of toxic impairment in unassessed waters.

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Comment ID: CTR-040-046  
Comment Author: County of Sacramento Water Div  
Document Type: Storm Water Auth.  
State of Origin: CA  
Represented Org:  
Document Date: 09/25/97  
Subject Matter Code: E-02i Impaired Waters Assumptions  
References: Letter CTR-040 incorporates by reference letter CTR-027  
Attachments? Y

CROSS REFERENCES

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Comment: The value of recreational angling was multiplied by 50% to obtain \$4.3 million annually for passive use benefits. The Wisconsin study, therefore, was the basis for \$12.9 million, or 2.5% of the \$51.7 million in total benefits.

EPA's estimate of increased angler participation (\$1 .5 million annually under the high-end scenario) is based on the unsupported assumption that reducing pollution causes more people to fish. It is just as likely that it does not.

Response to: CTR-040-046

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA Chapter 8). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA first applied Lyke's research in its analysis of the potential benefits of the Great Lakes Water Quality Guidance. Calculation of the range of results is explained in U.S. EPA (1993). Lyke estimated the Wisconsin Great Lakes open water sport fishery to be worth between \$339 and \$424 per licensed angler, resulting in an estimated consumer surplus associated with the fishery of between \$66.6 million and \$83.3 million annually. Lyke obtained values for a contaminant-free fishery ranging from \$7.4 million to \$26.1 million per year, with the range in results attributable to whether a linear or constant elasticity of scale functional form is used in the estimation. These results reflect between 11.1% and 31.3% of the value of the fishery under current conditions, which is the range of values EPA used in analysis of the CTR.

EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to CTR-035-009a.)

U.S. EPA, 1993. Regulatory Impact Analysis of the Proposed Great Lakes Water Quality Guidance. Final Report, April 15.

EPA estimated the percentage of California waters impaired by toxic pollutants based on water quality assessments developed by the State Water Resources Control Boards. EPA defined toxic-impaired waters as those rated medium or poor for one or more toxic pollutants or group of pollutants. Research (e.g., Lyke, 1993) indicates that the recreational value of water resources may be substantially enhanced by reducing toxic contamination.

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Comment ID: CTR-041-042  
Comment Author: Sacramento Reg Cnty Sanit Dist  
Document Type: Sewer Authority  
State of Origin: CA  
Represented Org:  
Document Date: 09/25/97  
Subject Matter Code: E-02i Impaired Waters Assumptions  
References:  
Attachments? N  
CROSS REFERENCES

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Comment: The value of recreational angling was multiplied by 50% to obtain \$4.3 million annually for passive use benefits. The Wisconsin study, therefore, was the basis for \$12.9 million, or 2.5% of the \$51.7 million in total benefits.

EPA's estimate of increased angler participation (\$1.5 million annually under the high-end scenario) is based on the unsupported assumption that reducing pollution causes more people to fish. It is just as likely that it does not.

Response to: CTR-041-042

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA Chapter 8). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

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EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to CTR-035-009a.)

U.S. EPA, 1993. Regulatory Impact Analysis of the Proposed Great Lakes Water Quality Guidance. Final Report, April 15.

EPA estimated the percentage of California waters impaired by toxic pollutants based on water quality assessments developed by the State Water Resources Control Boards. EPA defined toxic-impaired waters as those rated medium or poor for one or more toxic pollutants or group of pollutants. Research (e.g., Lyke, 1993) indicates that the recreational value of water resources may be substantially enhanced by reducing toxic contamination.

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Comment ID: CTR-044-037

Comment Author: City of Woodland  
Document Type: Local Government  
State of Origin: CA  
Represented Org:  
Document Date: 09/26/97  
Subject Matter Code: E-02i Impaired Waters Assumptions  
References:  
Attachments? N  
**CROSS REFERENCES**

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Comment: The value of recreational angling was multiplied by 50% to obtain \$4.3 million annually for passive use benefits. The Wisconsin study, therefore, was the basis for \$12.9 million, or 2.5% of the \$51.7 million in total benefits.

EPA's estimate of increased angler participation (\$1.5 million annually under the high-end scenario) is based on the unsupported assumption that reducing pollution causes more people to fish. It is just as likely that it does not.

Response to: CTR-044-037

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA p. 8-17). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA first applied Lyke's research in its analysis of the potential benefits of the Great Lakes Water Quality Guidance. Calculation of the range of results is explained in U.S. EPA (1993). Lyke estimated the Wisconsin Great Lakes open water sport fishery to be worth between \$339 and \$424 per licensed angler, resulting in an estimated consumer surplus associated with the fishery of between \$66.6 million and \$83.3 million annually. Lyke obtained values for a contaminant-free fishery ranging from \$7.4 million to \$26.1 million per year, with the range in results attributable to whether a linear or constant elasticity of scale functional form is used in the estimation. These results reflect between 11.1% and 31.3% of the value of the fishery under current conditions, which is the range of values EPA used in analysis of the CTR.

EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to Issue 3.)

U.S. EPA, 1993. Regulatory Impact Analysis of the Proposed Great Lakes Water Quality Guidance. Final

Report, April 15.

EPA estimated the percentage of California waters impaired by toxic pollutants based on water quality assessments developed by the State Water Resources Control Boards. EPA defined toxic-impaired waters as those rated medium or poor for one or more toxic pollutants or group of pollutants. Research (e.g., Lyke, 1993) indicates that the recreational value of water resources may be substantially enhanced by reducing toxic contamination.

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Comment ID: CTR-054-041

Comment Author: Bay Area Dischargers Associati

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02i Impaired Waters Assumptions

References:

Attachments? N

CROSS REFERENCES

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Comment: The value of recreational angling was multiplied by 50% to obtain \$4.3 million annually for passive use benefits. The Wisconsin study, therefore, was the basis for \$12.9 million, or 2.5% of the \$51.7 million in total benefits.

EPA's estimate of increased angler participation (\$1.5 million annually under the high-end scenario) is based on the unsupported assumption that reducing pollution causes more people to fish. It is just as likely that it does not.

Response to: CTR-054-041

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA p. 8-17). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA first applied Lyke's research in its analysis of the potential benefits of the Great Lakes Water Quality Guidance. Calculation of the range of results is explained in U.S. EPA (1993). Lyke estimated the Wisconsin Great Lakes open water sport fishery to be worth between \$339 and \$424 per licensed angler, resulting in an estimated consumer surplus associated with the fishery of between \$66.6 million



and \$83.3 million annually. Lyke obtained values for a contaminant-free fishery ranging from \$7.4 million to \$26.1 million per year, with the range in results attributable to whether a linear or constant elasticity of scale functional form is used in the estimation. These results reflect between 11.1% and 31.3% of the value of the fishery under current conditions, which is the range of values EPA used in analysis of the CTR.

EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to Issue 3.)

U.S. EPA, 1993. Regulatory Impact Analysis of the Proposed Great Lakes Water Quality Guidance. Final Report, April 15.

EPA estimated the percentage of California waters impaired by toxic pollutants based on water quality assessments developed by the State Water Resources Control Boards. EPA defined toxic-impaired waters as those rated medium or poor for one or more toxic pollutants or group of pollutants. Research (e.g., Lyke, 1993) indicates that the recreational value of water resources may be substantially enhanced by reducing toxic contamination.

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Subject Matter Code: E-02k Long-Term Contamination

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Comment ID: CTR-035-051c

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02k Long-Term Contamination

References:

Attachments? N

CROSS REFERENCES E-02g

E-02f

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Comment: C. Benefits Analysis pp. 5-7 - 5-8 (U.S. EPA, 1997a) -- Attribution of Benefits to the Control of Point Sources

We applaud EPA's effort to analyze and report the proportion of the total benefits that might accrue due to the implementation of controls on point source NPDES dischargers in the benefits analysis (although we believe that this apportionment should have been carried through to the estimates of passive use benefits). We believe that it is appropriate to state the benefits that can be attributed to the estimated expenditures. We recognize, however, that there are many limitations in this approach, and that better data are needed. For instance, the pollutant loadings data used in this analysis were old and outdated (specifically, the Davis and NOAA studies contained data that are 10-15 years old). We urge EPA to update these studies with more recent data for the final Economic Analysis.

We believe that the benefits analysis illustrates that, in many instances, point source controls will not produce significant benefits. For instance, this is illustrated by the fact that the projected health benefits of the CTR in reducing both cancer and baseline systemic risks are minimal (see pp. 8-11 - 8-16, (U.S. EPA, 1997a)). Another example is illustrated by an examination of those water bodies for which fish consumption advisories have been issued. For those included on the State's 303(d) list, except for San Francisco Bay, the causes of impairment are largely listed by the SWRCB as nonpoint sources, including mining or resource extraction, agricultural drainage or runoff, urban stormwater runoff, or other unspecified nonpoint sources (SWRCB, 1996).

In addition, the analysis of benefits should highlight more clearly the fact that there may be little or no benefits in the near-term due to long-term environmental persistence of existing contamination. As EPA itself acknowledges on p. 5-8 (U.S. EPA, 1997a), "historical loads may, in some instances, be the predominant source of toxics-related water quality problems. In such instances, efforts to control current discharges may be of relatively limited effectiveness and value." It is well-documented that some substances, such as DDT and PCBs, which have been banned for two or more decades, still persist in the environment; thus, the likelihood of the CTR substantially reducing loadings and producing benefits is minimal.

Response to: CTR-035-051c

As described in the EA (Chapter 8), research provides empirical evidence of the passive use values associated with improved water quality and fisheries. Research also indicates that these values are at least half as great as recreational values, such that if they are potentially applicable to a policy action,

providing a rough approximation is preferable, with proper caveats, to omitting them from the analysis of benefits and costs. EPA believes that the studies used to calculate the ratio of passive use to use value are applicable to the CTR (see also comment and response CTR-026-009).

Therefore, EPA applies a ratio of .5 to obtain an estimate of passive use values for those households that have active recreational anglers. Based on a review of the literature, EPA believes that non-angling household do indeed have a passive use value. To determine a lower-bound estimate of passive use values for non-angling households, EPA assumed that the value may be 30% of the value for angling households. For analysis of the final CTR, EPA revised the upper-bound estimate assuming that the passive use value of non-angling households may be 90% of those for angling households. This revision is based on a study by Loomis et al. (1991), who estimated the benefits of improved fishery, wetland, and waterfowl resources in the San Joaquin Valley to users and nonusers residing in California.

By multiplying a ratio of passive use to use value by recreational fishing values, which EPA apportioned to reflect the relative contribution of point sources, EPA also accounted for attribution in its estimate of passive use values.

For the EA that accompanied the proposal, EPA conducted an extensive search of the literature for more recent data or information related to the relative contributions of various sources to water quality impairments. In the EA accompanying the proposal, EPA solicited additional data, however, none was received. In revising the EA for the final rulemaking, EPA conducted an additional extensive search of the literature and research efforts at California universities for relevant information. EPA has incorporated any new information into the revised EA for the final rule.

Although the standards established by the CTR apply to all sources, EPA's analysis examined only the portion of benefits expected to be achieved by controlling point sources. EPA estimated the point source share of benefits based on data and information on the relative contribution of all sources to toxic loadings in California waters. Although point sources may account for only a small portion of the load in some waters, they may account for relatively larger portions at some sites, and point source controls will contribute to meeting standards in the water bodies.

EPA recognizes the persistence of some of the substances addressed by the CTR (e.g., DDT and PCBs) and the impact of this persistence on the realization of benefits. In the EA (Chapter 9), EPA accounted for this lag by assuming 10- and 20-year phase-in periods for benefits in its comparison of present value benefits and costs.

In addition, EPA believes that point source controls can factor into pollutant reduction scenarios, although the cost-effectiveness of point and nonpoint source controls are likely to be highly site specific. Potential "hidden" loads (contaminant concentrations which are not currently measured because they are below detection levels) from point sources may also be occurring and may increase the potential benefits of point source controls. In addition, point source loadings reductions will reduce future sediment contamination and, thereby, reduce the need for costly site-specific sediment remediation in the future. Therefore, the CTR can be viewed as both reducing current environmental risks (yielding benefits) by reducing current loadings, and reducing future environmental cleanup costs.

State of Origin: CA  
Represented Org:  
Document Date: 09/25/97  
Subject Matter Code: E-02k Long-Term Contamination  
References:  
Attachments? N  
CROSS REFERENCES E-02c

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Comment: Weaknesses in Benefits Analysis

USEPA's benefits analysis is even weaker than its cost evaluation. For example:

\* Although there is evidence that the Rule could result in no benefits in the near-term due to long-term environmental persistence of existing contamination, the Analysis does a poor job of highlighting this potential outcome. For example, there is some likelihood that benefits could truly be zero, while under no circumstances will Rule implementation be costless. Likewise, USEPA's use of ranges to express potential benefit values may mislead readers into believing that the estimated high benefits are as likely to be achieved as the low benefits, when in fact the probability that different benefit levels will actually be achieved varies greatly from low to high.

Response to: CTR-035-065a

The range of estimated benefits in part reflects the range in loadings reductions that may result from point source controls given the flexibility in State implementation procedures. The decision as to which implementation procedures will be employed, and therefore what costs and benefits will result, will be made by state and local entities for specific locations.

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Comment ID: CTR-035-052

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-021 Marginal Impacts/Benefits

References:

Attachments? N

#### CROSS REFERENCES

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Comment: pp. 6-1 - 6-12 (U.S. EPA, 1997a) -- Assessment of Potential Ecological Benefits

EPA should state in the Economic Analysis that there may not be a one-to-one relationship between benefits and reductions in toxic pollutants, due to the fact that factors such as habitat alteration, competition from invasive exotic species, inadequate flows, hydrologic modification, channelization, and other disturbances, may pose serious threats to ecological resources, and may undermine or partially negate the benefits of the rule.

Response to: CTR-035-052

EPA acknowledges that Lyke's study has not been published in a peer reviewed journal and that she obtained some inconsistent results. EPA applied Lyke's research to illustrate the types and potential magnitude of the benefits from water quality improvements. EPA conducted an extensive search of the literature for additional studies that provide indication of the potential magnitude of the benefits from reducing concentrations of toxic pollutants in California surface waters. The results of EPA's search are described in the EA that accompanies the final rule.

EPA acknowledges that applying Lyke's results to all California waters affected by toxics may overstate potential benefits (see EA Chapter 8). Anglers may or may not be aware of toxic contamination in the absence of fish consumption advisories. EPA acknowledges the limitations in the application of Lyke's research. However, EPA chose this approach to provide illustration of the potential magnitude of recreational angling values rather than leave this important benefit category unmonetized.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA first applied Lyke's research in its analysis of the potential benefits of the Great Lakes Water Quality Guidance. Calculation of the range of results is explained in U.S. EPA (1993). Lyke estimated the Wisconsin Great Lakes open water sport fishery to be worth between \$339 and \$424 per licensed angler, resulting in an estimated consumer surplus associated with the fishery of between \$66.6 million

and \$83.3 million annually. Lyke obtained values for a contaminant-free fishery ranging from \$7.4 million to \$26.1 million per year, with the range in results attributable to whether a linear or constant elasticity of scale functional form is used in the estimation. These results reflect between 11.1% and 31.3% of the value of the fishery under current conditions, which is the range of values EPA used in analysis of the CTR.

EPA acknowledges that Lyke-based benefits represent a substantial portion of total benefits and supports these benefits estimates. (See also comment and response to CTR-035-009a.)

U.S. EPA, 1993. Regulatory Impact Analysis of the Proposed Great Lakes Water Quality Guidance. Final Report, April 15.

EPA considers Lyke's scenario (waters completely free of contaminants that may threaten human health) to be similar to a scenario in which all California waters meet the water quality standards established by the CTR. EPA has no information to show that these standards cannot be achieved. Thus, EPA used Lyke's results to estimate the total potential benefits of achieving standards. However, since point source controls alone may not be sufficient to achieve the standards throughout California, EPA allocated only a portion of the total benefits to the CTR.

EPA agrees that the study site for Lyke's research is substantially different from California waters. However, EPA's search of the literature indicated that there is no similar research for California or other more similar waters. Therefore, EPA applied Lyke's results to provide decisionmakers with information on the types and potential magnitude of the benefits from water quality improvements, rather than leaving this important benefit category unmonetized. EPA has no information to determine whether California residents may value toxic-free waters more or less than Wisconsin residents.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

EPA agrees that the contingent valuation method (CVM) elicits an individual's stated willingness to pay or accept compensation. The benefit-cost comparisons in EAs are prepared to inform the public and policy makers. Thus, the strengths and weaknesses of all aspects of the EA, including methodologies for estimating benefits, need to be made clear so that readers are aware of the limits and uncertainties. However, a 1993 Blue Ribbon Panel convened by the National Oceanic and Atmospheric Administration (NOAA) evaluated CVM and found it to be an appropriate methodology for measuring values. It is also the only method accepted by the U.S. Department of the Interior (DOI) to estimate nonuse values and has withstood Federal Court review for its use in litigation contexts.

Additionally, much of the criticism of CVM is conceptual rather than based on empirical research. Where CVM can be compared to other research techniques (e.g., use values estimated by the travel cost methodology or the hedonic price method), CVM is shown to yield similar values (see Brookshire et al., 1982 and Smith et al., 1986). Additionally, in several field experiments, actual purchase decisions were compared to hypothetical purchase decisions (Bishop and Heberlein, 1978 and Dickie et al., 1987). In all of these studies, hypothetical behavior was sufficiently predictive of actual behavior that researchers

concluded meaningful values could be obtained for benefit-cost analysis or damage assessment.

Bishop, R.C. and T.A. Heberlein. 1978. Measuring values of extra-market goods: Are indirect measures biased? *American Journal of Agricultural Economics* 61(5): 926-930.

Brookshire, D., M. Thayer, W.D. Schulze, and R. d'Arge. 1982. Valuing public goods: A comparison of the survey and hedonic approaches. *American Economic Review* 72(1): 165-177.

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Comment ID: CTR-035-067

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-021 Marginal Impacts/Benefits

References:

Attachments? N

CROSS REFERENCES

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Comment: \* The benefits analysis does a poor job of evaluating the marginal impacts of the proposed rule. For example, "...even low contaminant concentrations in water, sediment, or diet may impair fitness, produce adverse-physiological effects that lead to death, or lower long-term survivability in the wild." Likewise, related to environmental benefits:

-- Only a qualitative description of ecologic benefits is provided because of.. (4) uncertainty regarding the extent to which the CTR will result in toxics loading reductions significant enough (relative to the contribution of historical and ongoing point and nonpoint loadings) to generate changes in ambient concentration and ecosystem health (U.S.EPA, 1997a, page 6-10).

Benefits are unlikely to be linear, but rather related to threshold changes in the environment.

Response to: CTR-035-067

EPA provided a qualitative description of benefits to supplement its quantitative analysis, acknowledging that even low concentrations of toxics in water, sediment, or diet may impair fitness or produce adverse physiological effects that can lead to death or lower long-term survivability in the wild (see EA Chapter 6).

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Comment ID: CTR-054-006

Comment Author: Bay Area Dischargers Assoc.

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-021 Marginal Impacts/Benefits

References:

Attachments? Y

## CROSS REFERENCES

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Comment: The benefits accruing from these costs would be minimal. The addition of lime treatment at three BADA agency plants to remove copper would have the effect of reducing copper loads to the Bay by 2,400 lbs/year (see Attachment 2). To put this in perspective, this is about 1 % of the total copper load to the Bay based on the Regional Board's 1993 Copper Wasteload Allocation. The cost per toxic pound equivalent removed would be between \$2,300/lb and \$14,800/lb, the former based on EPA's assumption regarding the cost and effectiveness of primary lime addition and the latter based on the assumption that tertiary lime treatment would be necessary. Further, the RMP has generally shown that the dissolved copper criteria is generally achieved in the Bay, with the exception of occasional exceedances in the extreme South Bay and the Petaluma River. Of 216 measurements made over 9 RMP sampling events, only about 10% of the samples exceeded the proposed criteria, with the highest single value recorded being 5.93 ug/l. Loading data is unavailable for the organics, but the RMP data show that there were no exceedances at any station for heptachlor and one of the problematic PAHs and that the other two problematic PAHs were exceeded in less than 3% of the samples. Like copper, the PAH exceedances occurred in the South Bay and the Petaluma River. Hence, reduction of PAHs in the one deep water discharger with attainability problems would not change the current level of compliance. The RMP did not analyze for aldrin. EPA's economic analysis based benefits estimates on improved fishing experience and increased angler participation, reduced cancer risks, and nonuse values associated with compliance with all water quality standards. A 1% reduction in copper loading to the Bay would not trigger any of these benefits, nor would controls that do not result in any change in the present level of compliance in Bay waters of PAHs and heptachlor criteria. Irrespective of the fact that the RMP-measured level of compliance with the subject PAHs is 97% and with heptachlor is 100%, EPA's cancer risk analysis identifies heptachlor as contributing 0.1% to the baseline cancer risks for anglers consuming Bay fish and does not list any PAH (see Economic Analysis Exhibit 8-7). In conclusion, adoption of the proposed criteria, while potentially imposing considerable costs on BADA agencies, would have very little beneficial impact on the Bay. Copper loading would be reduced by 1% and PAH compliance would remain unchanged at 97% to 100%.

Response to: CTR-054-006

As part of its revised cost analysis, EPA estimated the changes in estimated costs and pollutant load reductions based on the lower risk level of 10-5. Under the low scenario, costs decrease by \$1.1 million, approximately 11% less than the costs based on the higher risk level. Under the high scenario, annual costs decrease by \$5.8 million, also an 11% decrease from the costs based on a 10-6 risk level. Pollutant load reductions attributable to use of a lower risk level are estimated to decrease by approximately 4% and 1% under the low and high scenarios, respectively. The relatively low sensitivity of costs to the change in risk level primarily is related to the fact that most of the potential costs related to implementing the CTR are being driven by metals. Changes in risk levels for carcinogens primarily affect organic pollutants.

EPA believes that controls on point source dischargers will, in many cases, contribute to attaining standards in a given water body. As controls on other sources are also implemented, the water quality standards can be achieved. However, the total maximum daily load (TMDL) process is provided to address cost-ineffectiveness as it pertains to point or nonpoint sources. For example, if controls on nonpoint sources are a more cost-effective approach to achieving standards, the State can redistribute the load allocations through the TMDL process.

EPA recognizes that the benefits of the rule will not occur immediately, and has estimated lags in the



realization of benefits. However, EPA believes that the standards established by the CTR can be achieved through point source controls and will result in attaining designated uses of the water bodies, and that the estimated benefits are illustrative of the types and potential benefits to be achieved from attaining these uses.

The U.S. EPA Treatability Database indicates that chemical precipitation with addition of lime is a technology capable of removing metals at the concentrations and loading reductions required. For example, several treatment plants have reached concentrations of 7.7 ug/L for copper based on a pilot study (CTR-based level for copper is 8.03 ug/L) and 0.46 ug/L for silver (CTR-based level for silver is 1.51 ug/L) (U.S.EPA RREL). Some of the sample facilities already have a clarification system in place, therefore, only capital costs for the lime feeding and conveying system need to be considered. For facilities without clarifiers, the capital cost of a primary clarifier is also included in EPA's cost estimates. EPA's cost estimates are based on EPA's Treatability Manual (1980) and are adjusted for inflation.

References: U.S. EPA. 1980. Treatability Manual, Volume IV, Cost Estimating. U.S. EPA Risk Reduction Engineering Laboratory (RREL). Cincinnati, Ohio. Treatability Database.

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Comment ID: CTR-054-013d

Comment Author: Bay Area Dischargers Assoc.

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-021 Marginal Impacts/Benefits

References:

Attachments? Y

CROSS REFERENCES E-01g03

E-01q01

E-01m

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Comment: The economic analysis is seriously flawed. The major flaws include: (1) failing to do an appropriate sampling of dischargers; (2) assuming in the high-end cost scenario that a 25% reduction could be achieved through source control and an additional 25% achieved through treatment plant optimization without capital improvements; (3) constraining estimates of potential costs through key assumptions, including the assumption that regulatory relief from the rule would be granted if costs were in excess of certain thresholds; and (4) exaggerating estimates of potential benefits by assuming an end (i.e., achievement of the proposed water quality criteria) that will not result from the rule (see Attachment 3). The result of these flaws is that potential costs are greatly understated and potential benefits are greatly overstated. BADA's analysis shows that its member agencies alone could be faced with costs in excess of \$100 million per year to achieve effluent limits based on the copper, PAH, heptachlor and aldrin criteria. BADA's analysis also indicates that the benefits associated with this expenditure will be difficult to measure. Copper loadings will be reduced by 1% and the level of compliance for PAH's and heptachlor will remain unchanged at its present high level. Certainly these benefits will not measurably improve the fishing experience or measure the number of fisherman in the Bay, significantly reduce the cancer cases, or improve property values or other nonuse benefits, as estimated in EPA's economic analysis. A further consequence of the flawed economic analysis is the conclusion that the CTR is not a major rule (i.e., one which will result in excess of \$100 million per year expenditure) subject to Presidential Executive order 12866 and the Unfunded Mandates Reform Act or a

rule that affects small entities protected under the Regulatory Reform Act. BADA agencies provide service to a number of small communities with populations under 50,000 people that could be greatly impacted by the proposed rule.

Response to: CTR-054-013d

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of controlling other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

EPA considers Lyke's scenario (waters completely free of contaminants that may threaten human health) to be similar to a scenario in which all California waters meet the water quality standards established by the CTR. EPA has no information to show that these standards cannot be achieved. Thus, EPA used Lyke's results to estimate the total potential benefits of achieving standards. However, since point source controls alone may not be sufficient to achieve the standards throughout California, EPA allocated only a portion of the total benefits to the CTR.

EPA agrees that the study site for Lyke's research is substantially different from California waters. However, EPA's search of the literature indicated that there is no similar research for California or other more similar waters. Therefore, EPA applied Lyke's results to provide decisionmakers with information on the types and potential magnitude of the benefits from water quality improvements, rather than leaving this important benefit category unmonetized. EPA has no information to determine whether California residents may value toxic-free waters more or less than Wisconsin residents.

In addition, EPA believes that Lyke's scenario does not capture another component of potential value to current anglers that may result as reduced levels of toxic pollutants result in healthier sport fish populations. Lyke's survey asked anglers to consider a fishery that is free of contaminants that may threaten human health. However, fish are more sensitive than humans to some classes of toxic pollutants and fish populations may increase as contamination is reduced. To the extent that reducing toxic contamination results in a more satisfying angling experience in terms of increasing catch rates, achieving water quality standards may result in an increase in value to current anglers beyond that associated with reducing human health concerns.

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Comment ID: CTR-092-023b

Comment Author: City of San Jose, California

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/26/97

Subject Matter Code: E-021 Marginal Impacts/Benefits

References: Letter CTR-092 incorporates by reference letter CTR-035

Attachments? Y

CROSS REFERENCES E-02e

E-02q

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Comment: Comment #7: General Benefit Analysis Concerns

The benefit analysis undertaken by EPA uses old, out-of-state data which does not appear applicable to

California. A major concern with this analysis is that the benefit recipients are only a subset of those impacted by the costs. Another is that the benefits accrue to the public at large; costs, on the other hand, to the extent that CTR-implementation costs are borne by Indirect Dischargers (as assumed by EPA in the copper situation) accrue to businesses.

Further, the benefit measurements of "angling day" are only useful if they represent a net increase in fishing activity -- if all that improving waterway quality does is create additional sites where safe fishing can occur, without increasing the overall amount of fishing that occurs, there is no net gain, there is only substitution between comparable sites. The value of benefits which occur because of substitution between fishing sites must be subtracted from the value which occurs from increased fishing. This has not been done in the EPA analysis, thus benefits are overstated.

Further, no stratification is evident to account for importation of out-of-state fishers -- including benefit value of attracting new anglers from other states to California fishing sites is irrelevant to an analysis of costs/benefits of implementing the CTR for California.

Questions for EPA on Comment #7:

Q.7 - 1) If the concerns stated above were appropriately addressed, what would be the impact on EPA's benefits analysis? Our concern relates to the need to examine levels of regulation in comparison to benefits obtained, i.e. cost-effectiveness.

Q.7 - 2) Executive Order 12866, in recognition that quantification of benefits is very difficult, is quite explicit about addressing qualitative benefits wherever possible why wasn't that done in this analysis?

Response to: CTR-092-023b

EPA was not able to locate more relevant or more recent data or research for the analysis. EPA solicited relevant data and information in the EA and proposal. In addition, in response to comments, EPA conducted an extensive search of the literature for any additional recent, California-specific data or information applicable to the benefits analysis. EPA reviewed and evaluated all data and information submissions, and the results of the literature search, and revised the EA and CTR as appropriate prior to promulgating the final rule.

Although it is true that the direct costs of the regulation are borne by municipal and industrial dischargers while the benefits accrue to the public at large, it is also true that in generating the discharges, the benefits (cost savings) accrued to businesses and municipalities while the costs (decreased utility associated with water resources) were borne by the public. Ultimately, benefits and costs are borne throughout society (e.g., costs are borne directly by municipal and industrial dischargers but indirectly by the public who pays for their products and services).

EPA acknowledged that increased angling activity at sites experiencing reductions in toxic contaminants may reflect a shift in activity from substitute sites rather than a net increase. Because EPA could not account for substitute sites in this analysis, EPA estimated lower bound benefits of \$0 (i.e., assuming no net increases in activity; see EA, Chapter 8).

EPA's estimate of the relevant angling population is based on resident California anglers (see Analysis of the Potential Benefits Related to Implementation of the California Toxics Rule, Draft, December 20, 1996, pp. 3-23, 3-35 to 3-36).

EPA revised its economic analysis in response to comments and to reflect any new data or changes to the proposal. The estimated cost-effectiveness of the rule is expected to range from \$22/lb-eq to \$31/lb-eq. EPA expects the total annual, monetized benefits from implementation of the CTR to range from \$8.7 to \$40.8 million dollars.

Chapter 6 of the EA (Qualitative Assessment of Potential Ecological Benefits) provides a qualitative discussion of potential ecological benefits. EPA also provided a qualitative discussion of important benefit categories that it was not able to quantify or monetize (see the EA that accompanied the proposed rule, Chapter 8).

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Subject Matter Code: E-02m Few Pollutant Mask Analysis

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Comment ID: CTR-035-069

Comment Author: Tri-TAC/CASA

Document Type: Trade Org./Assoc.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02m Few Pollutant Mask Analysis

References:

Attachments? N

CROSS REFERENCES

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Comment: \* Most of the public health benefits appear to be associated with a small number of contaminants, acting to mask the benefit cost analysis. For example, cancer risks are dominated by four contaminants, two of which -- DDT and PCBs -- may be substantially unrelated to ongoing point sources. In other words, while costs are associated with reductions in a wide range of toxic materials, benefits may be derived from a small subset of these toxins, most of which are primarily related to non-point sources or historical contamination.

Response to: CTR-035-069

EPA analyzed potential reductions for over forty toxic pollutants that may be discharged by point sources. EPA expects that reductions in these toxics will lead to a variety of benefits including ecological, health, and recreational benefits. Although certain health risks such as cancer are indeed dominated by only a few toxic contaminants that may not be greatly reduced by point source controls, reductions of these toxics are, nevertheless, expected to yield reductions in cancer cases as well as systemic health risks. EPA expects the annual reduction in cancer cases among recreational anglers after implementation of the CTR to range from 0.0 to 0.1 for San Francisco Bay and 0.0 to 0.8 for freshwater resources. EPA also analyzed the post-CTR hazard quotients (HQ) for systemic risks among recreational anglers with high consumption rates. The HQ for PCBs may be reduced from 11.31 to 5.44 for San Francisco Bay anglers and from 7.02 to 3.28 for freshwater anglers.

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Comment ID: CTR-059-025

Comment Author: Los Angeles County Sanit. Dist

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/26/97

Subject Matter Code: E-02m Few Pollutant Mask Analysis

References: Letter CTR-059 incorporates by reference letter CTR-035

Attachments? Y

CROSS REFERENCES E-01g08

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Comment: Economic Analysis

The Sanitation Districts commends EPA for preparing an analysis of the economic impacts of the proposed CTR, and for selecting POTWs for half of the case studies. We believe that EPA is correct in thinking that POTWs are likely to experience major impacts as a result of the promulgation of the CTR. However, we believe that this analysis is based on improper assumptions and inaccurate cost estimates, resulting in unconvincing conclusions. Our own attainability and cost analysis indicates that there are indeed fundamental flaws in the cost analysis. A few of the areas of concern are listed below:

\* The Economic Analysis suggests that reductions attributable to point source reductions may be de minimis. For instance, most of the public health benefits appear to be associated with a small number of contaminants, most of which are not discharged in significant quantities by point source dischargers. Cancer risks, for example, are dominated by four contaminants, two of which -- DDT and PCBs -- are mainly the result of historic discharges rather than due to ongoing point source inputs.

Response to: CTR-059-025

EPA analyzed potential reductions for over forty toxic pollutants that may be discharged by point sources. EPA expects that reductions in these toxics will lead to a variety of benefits including ecological, health, and recreational benefits. Although certain health risks such as cancer are indeed dominated by only a few toxic contaminants that may not be greatly reduced by point source controls, reductions of these toxics are, nevertheless, expected to yield reductions in cancer cases as well as systemic health risks. EPA expects the annual reduction in cancer cases among recreational anglers after implementation of the CTR to range from 0.0 to 0.1 for San Francisco Bay and 0.0 to 0.8 for freshwater resources. EPA also analyzed the post-CTR hazard quotients (HQ) for systemic risks among recreational anglers with high consumption rates. The HQ for PCBs may be reduced from 11.31 to 5.44 for San Francisco Bay anglers and from 7.02 to 3.28 for freshwater anglers.

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Subject Matter Code: E-02o Analysis from Wisconsin

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Comment ID: CTR-009-008c

Comment Author: City of Thousand Oaks

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/22/97

Subject Matter Code: E-02o Analysis from Wisconsin

References:

Attachments? Y

CROSS REFERENCES E-02c

E-01s

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Comment: The City does not agree with the economic analysis. It is incomplete and misrepresents the actual costs and benefits. The analysis does not include costs of expensive AWT to meet more stringent limits based upon the proposed criteria. It does not include the first second, and third order costs to the community, individuals and businesses, of the economic dislocations resulting from huge capital costs, especially for small and economically distressed communities, that divert scarce resources from other priorities or out of the area. It does not include cost impact assessments to low and fixed-income households - ignoring the economic aspects of environmental justice. The benefits assessments make vast unsupported assumptions about the benefits of reductions in constituent concentrations that are barely, if even, measurable, and assigns unrealistic contingent valuations to these assumed benefits. The cost analyses does not follow EPA's own economic assessment guidance (which, itself, is fatally flawed). These points were brought up during the Task Force meetings in 1995 and 1996, but were dismissed outright by EPA. The City hereby raises these issues for the formal record.

The City of Thousand Oaks appreciates the opportunity to comment on the proposed California Toxics Rule.

Sincerely,

Donald H. Nelson Public Works Director

Response to: CTR-009-008c

EPA's own economic assessment guidance (Interim Economic Guidance for Water Quality Standards, EPA-823-B-95-002, March 1995) is intended to assist States and applicants in understanding the economic factors that may be considered, and the types of tests that can be used to determine if a designated use cannot be attained, if a variance can be granted, or if degradation of high-quality water is warranted. In order to remove a designated use or obtain a variance, or if degradation of high-quality water is warranted, the state or discharger must demonstrate that attaining the designated use would result in substantial and widespread economic and social impacts. Although EPA is responsible for approving a State's water quality standards, the State is responsible for interpreting the circumstances of each case and determining where there are substantial and widespread economic and social impacts, or where important social and economic development would be precluded.

Estimating the economic impact of the CTR in California requires a detailed econometric model of the region's economy. EPA did not conduct such an analysis of the rule. However, for a similar toxics rule in

the Great Lakes Basin, an econometric analysis was performed independent of the regulatory impact analysis for the Council of Great Lakes Governors (The Great Lakes Water Quality Initiative: Cost Effective Measures to Enhance Environmental Quality and Regional Competitiveness. DRI/McGraw-Hill, San Francisco, California, July 1993). This analysis showed a minimal impact of the rule on the region's economy for a worst case scenario, a scenario with costs far exceeding those estimated by EPA. Manufacturing output was estimated to fall by between 0.008% and 0.337% over a range of four scenarios evaluated, while personal income loss was estimated at between 0.002% and 0.094% for these scenarios. As a result, the study authors concluded that the impact of the rule on the region's economy would be "nearly imperceptible." Thus, similar controls on toxic pollutants have been shown to be affordable in other regions of the country. In addition, all of the United States, with exception of California, has implemented CWA section (c)(2)(3).

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Comment ID: CTR-040-045

Comment Author: County of Sacramento Water Div

Document Type: Storm Water Auth.

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02o Analysis from Wisconsin

References: Letter CTR-040 incorporates by reference letter CTR-027

Attachments? Y

CROSS REFERENCES

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Comment: EPA's estimate of increased value of recreational angling (\$8.6 million annually under the high-end scenario) is highly suspect:

\* It is based on a Ph.D. dissertation that does not appear to have been subjected to outside peer review (no paper has been found in a peer-reviewed journal). The primary focus of the dissertation was the evaluation, using Wisconsin anglers, of a travel cost model to value changes in environmental quality. A secondary purpose as to evaluate a contingent valuation model to determine the increased value of fishing in pollutant-free waters. The dissertation was based on two surveys of Wisconsin anglers, one set of anglers who fished for trout and salmon in the Great Lakes and another set who fished for the same fish in inland waters. The surveys contained 64 questions, only two of which addressed the increased value of recreational angling in pollutant-free water. There were 274 respondents to the Great Lakes survey and 239 respondents to the inland waters survey. (see Attachment B-2)

\* EPA seems to have selectively used the dissertation. For example, EPA used the results of the Great Lakes survey (which showed an 11.1% increase in value based on mean values) but did not use the inland waters survey (which actually showed a reduction in value with pollutant-free water). This of course raises questions about the validity of the survey and the values present in the dissertation. Further, in estimating the high-end benefits, EPA appears to have used the pollutant-free mean value and compared that to the low-end polluted water value (mean value minus the standard error). It is not clear why EPA would have done this.

\* This approach assumes that the current value of recreational angling in California is impaired as a result of pollution. That may be the case in some waters of the State, but it is certainly not the case in the vast majority of the State's waters.



\* This approach also assumes that the CTR will result in pollutant-free water, which, as stated previously, is not the case.

Response to: CTR-040-045

EPA acknowledges that Lyke's study has not been published in a peer reviewed journal and that she obtained some inconsistent results. EPA applied Lyke's research to illustrate the types and potential magnitude of the benefits from water quality improvements. EPA conducted an extensive search of the literature for additional studies that provide indication of the potential magnitude of the benefits from reducing concentrations of toxic pollutants in California surface waters. The results of EPA's search are described in the EA that accompanies the final rule.

EPA estimated the percentage of California waters impaired by toxic pollutants based on water quality assessments developed by the State Water Resources Control Boards. EPA defined toxic-impaired waters as those rated medium or poor for one or more toxic pollutants or group of pollutants. Research (e.g., Lyke, 1993) indicates that the recreational value of water resources may be substantially enhanced by reducing toxic contamination.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of the States's actions that may control other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

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Comment ID: CTR-041-041

Comment Author: Sacramento Reg Cnty Sanit Dist

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02o Analysis from Wisconsin

References:

Attachments? N

CROSS REFERENCES

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Comment: EPA's estimate of increased value of recreational angling (\$8.6 million annually under the high-end scenario) is highly suspect:

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Lakes survey (which showed an 11.1 % increase in value based on mean values) but did not use the inland waters survey (which actually showed a reduction in value with pollutant-free water). This of course raises questions about the validity of the survey and the values present in the dissertation. Further, in estimating the high-end benefits, EPA appears to have used the pollutant-free mean value and compared that to the low-end polluted water value (mean value minus the standard error). It is not clear why EPA would have done this.

\* This approach assumes that the current value of recreational angling in California is impaired as a result of pollution. That may be the case in some waters of the State, but it is certainly not the case in the vast majority of the State's waters.

\* This approach also assumes that the CTR will result in pollutant-free water, which, as stated previously, is not the case.

Response to: CTR-041-041

EPA acknowledges that Lyke's study has not been published in a peer reviewed journal and that she obtained some inconsistent results. EPA applied Lyke's research to illustrate the types and potential magnitude of the benefits from water quality improvements. EPA conducted an extensive search of the literature for additional studies that provide indication of the potential magnitude of the benefits from reducing concentrations of toxic pollutants in California surface waters. The results of EPA's search are described in the EA that accompanies the final rule.

EPA estimated the percentage of California waters impaired by toxic pollutants based on water quality assessments developed by the State Water Resources Control Boards. EPA defined toxic-impaired waters as those rated medium or poor for one or more toxic pollutants or group of pollutants. Research (e.g., Lyke, 1993) indicates that the recreational value of water resources may be substantially enhanced by reducing toxic contamination.

EPA's analysis presents only the portion of the total potential benefits that can be achieved by controlling point sources. EPA expects additional benefits will accrue as a result of the State's action that may control other sources. EPA has no reason to believe that the standards established by the CTR cannot be achieved.

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Comment ID: CTR-044-036

Comment Author: City of Woodland

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/26/97

Subject Matter Code: E-02o Analysis from Wisconsin

References:

Attachments? N

CROSS REFERENCES

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Comment ID: CTR-054-040

Comment Author: Bay Area Dischargers Associati

Document Type: Sewer Authority

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02o Analysis from Wisconsin

References:

Attachments? N

CROSS REFERENCES

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Response to: CTR-054-040

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Subject Matter Code: E-02o01 No Peer Review Reference

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Comment ID: CTR-090-004

Comment Author: C&C of SF, Public Utl. Commis.

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/25/97

Subject Matter Code: E-02o01 No Peer Review Reference

References: Letter CTR-090 incorporates by reference letters CTR-035 and CTR-054

Attachments? Y

#### CROSS REFERENCES

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Comment: Major Concerns About the Proposed Criteria and Rule

1. The Proposal is Based on Poor Data and Will Not Result in Better Water Quality for California. We stated that our own attainability analysis and that of BADA show that San Francisco,) will be impacted by this rule. Unfortunately, due to the short time for review, the poor quality of data and basis for statements and assumptions in the proposal and the problem with detection limits we cannot specifically say what will be the cost to Sari Francisco. One analysis tell us it could be \$2.3 million per year annualized costs and another analysis tells us it could be much more. We strongly recommend major revision to the proposal and the economic analysis before final promulgation for the following reasons:

The benefits section of the economic analysis is extremely flawed; the data used to develop the benefits section is highly questionable, some of which has not been peer reviewed ( see BADA comments);

Response to: CTR-090-004

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Subject Matter Code: E-02q Benefits to Public at Large

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Comment ID: CTR-092-023c

Comment Author: City of San Jose, California

Document Type: Local Government

State of Origin: CA

Represented Org:

Document Date: 09/26/97

Subject Matter Code: E-02q Benefits to Public at Large

References: Letter CTR-092 incorporates by reference letter CTR-035

Attachments? Y

CROSS REFERENCES E-02e

E-02l

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Comment: Comment #7: General Benefit Analysis Concerns

The benefit analysis undertaken by EPA uses old, out-of-state data which does not appear applicable to California. A major concern with this analysis is that the benefit recipients are only a subset of those impacted by the costs. Another is that the benefits accrue to the public at large; costs, on the other hand, to the extent that CTR-implementation costs are borne by Indirect Dischargers (as assumed by EPA in the copper situation) accrue to businesses.

Further, the benefit measurements of "angling day" are only useful if they represent a net increase in fishing activity -- if all that improving waterway quality does is create additional sites where safe fishing can occur, without increasing the overall amount of fishing that occurs, there is no net gain, there is only substitution between comparable sites. The value of benefits which occur because of substitution between fishing sites must be subtracted from the value which occurs from increased fishing. This has not been done in the EPA analysis, thus benefits are overstated.

Further, no stratification is evident to account for importation of out-of-state fishers -- including benefit value of attracting new anglers from other states to California fishing sites is irrelevant to an analysis of costs/benefits of implementing the CTR for California.

Questions for EPA on Comment #7:

Q.7 - 1) If the concerns stated above were appropriately addressed, what would be the impact on EPA's benefits analysis? Our concern relates to the need to examine levels of regulation in comparison to benefits obtained, i.e. cost-effectiveness.

Q.7 - 2) Executive Order 12866, in recognition that quantification of benefits is very difficult, is quite explicit about addressing qualitative benefits wherever possible why wasn't that done in this analysis?

Response to: CTR-092-023c

EPA was not able to locate more relevant or more recent data or research for the analysis. EPA solicited relevant data and information in the EA and proposal. In addition, in response to comments, EPA conducted an extensive search of the literature for any additional recent, California-specific data or information applicable to the benefits analysis. EPA reviewed and evaluated all data and information submissions, and the results of the literature search, and revised the EA and CTR as appropriate prior to

promulgating the final rule.

Although it is true that the direct costs of the regulation are borne by municipal and industrial dischargers while the benefits accrue to the public at large, it is also true that in generating the discharges, the benefits (cost savings) accrued to businesses and municipalities while the costs (decreased utility associated with water resources) were borne by the public. Ultimately, benefits and costs are borne throughout society (e.g., costs are borne directly by municipal and industrial dischargers but indirectly by the public who pays for their products and services).

EPA acknowledged that increased angling activity at sites experiencing reductions in toxic contaminants may reflect a shift in activity from substitute sites rather than a net increase. Because EPA could not account for substitute sites in this analysis, EPA estimated lower bound benefits of \$0 (i.e., assuming no net increases in activity; see EA, Chapter 8).

EPA's estimate of the relevant angling population is based on resident California anglers (see Analysis of the Potential Benefits Related to Implementation of the California Toxics Rule, Draft, December 20, 1996, pp. 3-23, 3-35 to 3-36).

EPA revised its economic analysis in response to comments and to reflect any new data or changes to the proposal.

(EPA revised.....already part of text)....The estimated cost-effectiveness of the rule is expected to range from \$22/lb-eq to \$31/lb-eq. EPA expects the total annual, monetized benefits from implementation of the CTR to range from \$8.7 to \$40.8 million dollars.

Chapter 6 of the EA (Qualitative Assessment of Potential Ecological Benefits) provides a qualitative discussion of potential ecological benefits. EPA also provided a qualitative discussion of important benefit categories that it was not able to quantify or monetize (see the EA that accompanied the proposed rule, Chapter 8).

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